

International University of Africa
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**Use of Henna (*Lawsonia inermis*) Extract as Dyeing
Agent in Leather Tanning**

*A thesis Submitted in partial fulfillment of the Requirements for the
degree of MS.c in Industrial Chemistry*

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الآية

سم الله الرحمن الرحيم

قال تعالى:

وَاللَّهُ جَعَلَ لَكُم مِّن بُيُوتِكُمْ سَكَنًا وَجَعَلَ لَكُم مِّن
جُلُودِ الْأَنْعَامِ بُيُوتًا تَسْتَخِفُّونَهَا يَوْمَ ظَعْنِكُمْ وَيَوْمَ
إِقَامَتِكُمْ^١ وَمِنْ أَصْوَابِهَا وَأَوْبَارِهَا وَأَشْعَارِهَا أَثَاثًا
وَمَتَاعًا إِلَىٰ حِينٍ (80)

صدق الله العظيم

سورة النحل الآية (80)

Dedication

To my Mother that Always stand Behind me
and Make my Life Bright and Beautiful.

To my Father that who Always Encourages
me.

To my Kind Sisters and Brother.

To my Lovely Friends

Acknowledgment

I initially I thank Allah who helped me in finishing
this work in this way.

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Prof. Gurashi Abdalla Gasm Elseed

Who gave me this chance to work with him and supplied
me with valuable facts and opinions.

Abstract

Extract from the leaves of *Lawsonia inermis* (henna), which is widely distributed in Sudan, has been investigated for its utilization in the retanning of leather. Leaves of henna have been extracted for 24 hours with distilled water in a ratio (1:10 W/V) at a temperature (60 °C). The properties of the leather, softness, fullness, grain smoothness, grain tightness, and general appearance are found to be satisfactory.

Henna retanning resulted in leathers with good grain tightness, physical strength characteristic, and shrinkage temperature, as well as economic viability. The work presented in this research focuses in an eco-friendly dyeing process of leather using aqueous henna leaves extract that contains *Lawsonia* (2-hydroxy 1.4-naphtha quinine). The color of the leather had become deeper with increasing the amount of henna extract and multiple color have been obtained depending on the type of mordant. The extract was used in combination tannage system employing 20% of the extract power giving a leather of good physical and chemical properties.

المستخلص

يعتبر الاستخلاص من اوراق الحناء واسع الانتشار في السودان ، وقد استعملت للاستخدام في دباغة الجلود . في هذا البحث .

تم استخلاص اوراق الحناء لمدة 24 ساعة بالماء المقطر بنسبة (1:10 w/v) عند درجة حرارة اعلي من (60 °C) .

خصائص الجلد :

النعومة ، الامتلاء ، نعومة الحبيبات ، تماسك الحبيبات ، المظهر العام مرضي .
انتجت دباغة الجلود بالحناء جودة في تماسك الحبيبات ، خصائص القوة الفيزيائية وانكماش درجة الحرارة مما ادي الي قيمة اقتصادية جيدة . والعمل في هذا البحث يركز علي طرق دباغة الجلود الصديقة للبيئة باستخدام مستخلص محلول اوراق الحناء المكون من اللاوسون (2-هيدروكسي 1،4 نافثا كينون) . وقد اصبح لون الجلد اعمق مع زيادة تركيز كمية مستخلص الحناء واللوان متعددة نحصل عليها تعتمد علي نوع المضافات . المستخلص قد استخدم في خليط مواد نظام الدباغة 20% من المستخلص بدره يعطي خصائص فيزيائية وكيميائية جيدة .

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